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BAQ Engineering Services Division

Company Name	Santee Cooper – Myrtle Beach Gas Turbine	Permit Writer:	James Myers
Permit Number:	TV-1340-0021	Date:	DRAFT

DATE APPLICATION RECEIVED: June 8, 2016**DATE OF LAST INSPECTION:** February 22, 2016 – The facility was not in operation at the time of the inspection. No violations were noted.**FACILITY DESCRIPTION**

This facility is a state owned and operated public electric and water utility. This utility consists of 5 simple cycle combustion turbines. Two of the GE turbines are rated at 186.6 MMBtu/hr heat input (12 MW output) each and burn either natural gas or No. 2 fuel oil. Two other GE turbines are rated at 270.3 MMBtu/hr heat input (27 MW output) each that are fired on No. 2 fuel oil. The Westinghouse turbine is rated at 352 MMBtu/hr heat input (35 MW output) and is fired on No. 2 fuel oil. Three diesel engines are used to assist in the startup of the turbines. Auxiliary processes and equipment include a control room, warehouse/maintenance building, fuel oil storage tanks, emergency generators, and associated fuel handling pumps.

PROJECT DESCRIPTION

This project is for the renewal of the facility's Title V operating permit.

CHANGES SINCE LAST OP ISSUANCE

June 26, 2014 – The environmental contact was changed from Jay Hudson to Julie Metts through an administrative amendment.

CHANGES FOR THIS RENEWAL:

The emergency generators (EG01, EG02) and the starting engines (SD01, SD02, SD03) were added as permitted sources since they are subject to a MACT. These engines are contained in the new Emission Unit ID 06 created for these engines for this renewal.

Condition Comparison		Notes
Current Title V	New Title V	
5.B.1	C.1	Equipment capacities general condition. No change.
5.B.2	---	Continuous monitoring general condition. No condition in new permit since there is no continuous monitoring required.
5.B.3	C.2	General record keeping condition updated to new template language.
5.B.4	---	General source test condition. No condition in the new permit is included since there are no required source tests.
01.1	C.3	Standard 4 opacity limit and monitoring condition. Updated to new standard condition and split into two conditions separating the limit and monitoring.
---	C.4	Standard 4 opacity limit for EG02. This engine was previously an insignificant activity.
01.1	C.5	Standard 4 opacity monitoring condition. The current Title V permit bases the requirement to perform a visual inspection on hours of operation. The new condition will just require a semiannual inspection when operating. This change is to be consistent with the other facilities and to simplify the requirement.



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02.1	C.3, C.5	Standard 4 opacity limit and monitoring combined with 01.1.
03.1	C.3, C.5	Standard 4 opacity limit and monitoring combined with 01.1.
03.2	C.10	CSAPR condition. No change.
04.1	C.3, C.5	Standard 4 opacity limit and monitoring combined with 01.1.
04.2	C.10	CSAPR condition. Will be combined with condition 03.2 as C.10 in the new permit.
05.1	C.3, C.5	Standard 4 opacity limit and monitoring combined with 01.1.
05.2	C.10	CSAPR condition. Will be combined with condition 03.2 as C.10 in the new permit.
5.D.1	C.15	Fuel oil limit and record keeping. Updated to new standard condition.
6.D.1	C.6	Fuel type limits for turbines 01, 02. Updated to new standard condition.
6.D.1	C.7	Fuel type limits for turbines 03, 04, 05. Updated to new standard condition.
6.D.2	C.8	Starting engines hourly limits. Added semiannual reporting.
6.D.3	---	Record storage at Grainger Station condition. Since the Grainger Station no longer exists, the records will be stored on site. The requirement to maintain records on site is standard template language so a new condition is not required.
6.D.4	C.9	CAIR condition. No change. The new permit also contains a CAIR permit as an attachment. The facility submitted a CAIR application in 2009 but it was not included in the current permit.
---	C.11	NSPS Subpart IIII general applicability for EG02
---	C.12	NSPS Subpart IIII specific applicability condition for the engine type.
---	C.13	NSPS Subpart IIII non-resettable hour meter requirement.
---	C.14	NSPS Subpart IIII operating hours for emergency generators.

SPECIAL CONDITIONS, MONITORING, LIMITS

The starting engines SD01 and SD02 are limited to 500 hours of operation per year each and SD03 is limited to 550 hours per year. These starting engines that were considered insignificant activities are now permitted equipment as Unit ID 06. They will continue to operate with the hour per year restrictions. The hourly limits were taken since these engines are only used during startup and the limitation allowed them to meet the emissions criteria for an insignificant activity. An increase in operating hours would require a PSD applicability analysis and a possible modeling demonstration. The engines are now permitted since they are subject to 40 CFR 63 Subpart ZZZZ.

FACILITY WIDE EMISSIONS*		
Pollutant	Uncontrolled Emissions	Controlled/Limited Emissions
	TPY	TPY
Particulate Matter (PM)	68.8	68.8
Particulate Matter <10 Microns (PM ₁₀)	68.8	68.8
Particulate Matter <2.5 Microns (PM _{2.5})	68.8	68.8
Sulfur Dioxide (SO ₂)	2,801	2,801
Nitrogen Oxides (NO _x)	4,894	4,894
Carbon Monoxide (CO)	150.5	150.5
Total Volatile Organic Compounds (VOC)	7.4	7.4
Lead (Pb)	0.078**	0.078**
Highest HAP: Formaldehyde	2.26	2.26



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FACILITY WIDE EMISSIONS*		
Pollutant	Uncontrolled Emissions	Controlled/Limited Emissions
	TPY	TPY
Total HAP	4.01	4.01
Carbon Dioxide (CO ₂)	871070	871070
Greenhouse Gases (CO ₂ e Basis)	907731	907731

* Facility Wide emissions take into account the hourly limits on the starting engines and emergency generator.

** Previous lead emissions were based on an incorrect emission factor (1.30 E-04 lb/MMBtu). The lead emissions have been corrected using the correct AP42 factor for lead (1.4 E-05 lb/MMBtu).

OPERATING PERMIT STATUS

This facility operates under Title V Operating Permit; issued on January 31, 2012; effective on April 1, 2012; and expired on March 31, 2017.

REGULATORY APPLICABILITY REVIEW	
Regulations	Comments/Periodic Monitoring Requirements
Section II.E – Synthetic Minor	The facility is a major source for Title V and PSD pollutants. There are no synthetic minor limits at this facility.
Standard No. 1	The stationary gas turbines and the internal combustion engines do not meet the definition of a fuel burning operation. There is no indirect heating.
Standard No. 3 (state only)	The turbines are only permitted to burn virgin fuel. This Standard is not applicable.
Standard No. 4	The turbines and the starting engines do not use any solid fuels so there is no process weight rate. These sources are only subject to the opacity limits for the specific construction/modification date. Periodic visual inspections are required semiannually.
Standard No. 5	None of the processes regulated by this this Standard apply to the turbines. The No.2 fuel oil storage tanks are each greater than 40,000 gallons in capacity, however the facility wide VOC emissions are less than 100 tons per year. Section II of the Standard states sources with facility wide emissions less than 100 tons per year are not subject.
Standard No. 5.2	The turbines were all installed prior to the applicability date and the burners have not been replaced. The starting engines and EG01 were installed prior to June 25, 2004 and are not subject to this Standard. The EG02 is an emergency generator installed in 2009. Section I(B)(1) exempts sources listed in SC Reg. 61-62.1, Section II(B). Emergency generators are exempt sources under Section II(B)(2)(b)(2)(f).
Standard No. 7	The facility is a major source for PSD, however all five simple cycle combustion turbines were installed prior to PSD applicability and no modifications have subsequently occurred. The facility is a major source for the following pollutants: SO ₂ , NO _x
61-62.6	This facility does not have fugitive PM (Dust) emissions.



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REGULATORY APPLICABILITY REVIEW

Regulations	Comments/Periodic Monitoring Requirements
40 CFR 60 and 61-62.60	Subpart GG (Turbines) - Exempted from this regulation. Units were installed prior to October 3, 1977. Subpart IIII (Compression Ignition Internal Combustion Engines) – Equipment EG-02 is subject to this regulation. The engine is considered an emergency engine and as such is limited to 100 hours per year for maintenance and readiness testing purposes. The other emergency generator (EG01) and the starting engines (SD01, SD02, SD03) were all manufactured before the applicability date. Subpart KKKK (Turbines) - Exempted from this regulation. Units were installed prior to February 18, 2005.
40 CFR 61 and 61-62.61	None of the processes which are regulated by this standard apply.
40 CFR 63 and 61-62.63	Subpart YYYY (Turbines): The facility is an area source for HAP. This MACT does not apply to turbines at area sources. Subpart ZZZZ (RICE): The emergency generators (EG01, EG02) are subject to this subpart as emergency stationary RICE. The starting engines (SD01, SD02, SD03) are subject as non-emergency generators.
61-62.68	The facility does not store any regulated chemicals above threshold quantities.
40 CFR 64 (CAM)	None of the equipment at this facility contains control devices. This regulation does not apply.
Regulation 61-62.72 (Acid Rain)	These turbines were installed before the applicability date of November 15, 1990 for simple cycle turbines.
Regulation 40 CFR 96 (Nitrogen Oxides (NO _x) and Sulfur Dioxide (SO ₂) Budget Trading Program)	The facility participates in the NO _x and SO ₂ Budget Trading Program.
Regulation 40 CFR 97 (CSAPR)	Units 03, 04, and 05 are each over 25 MW in capacity and subject to this rule.

AMBIENT AIR STANDARDS REVIEW

Regulations	Comments/Periodic Monitoring Requirements
Standard No. 2	There have been no changes at the facility since the last renewal. A new modeling demonstration is not required.
Standard No. 7.c	There have been no changes at the facility since the last renewal. A new modeling demonstration is not required.
Standard No. 8 (state only)	There have been no changes at the facility since the last renewal. A new modeling demonstration is not required.

PUBLIC NOTICE

This Title V Permit will undergo a 30-day public notice period and a 45-day EPA comment period in accordance with SC Regulation 61-62.1, Section II.N. The comment period was open from September 7, 2017 to October 6, 2017 and was placed on the BAQ website during that time period.



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ADDITIONAL PUBLIC PARTICIPATION

SUMMARY AND CONCLUSIONS

It has been determined that this source, if operated in accordance with the submitted application, will meet all applicable requirements and emission standards.

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